

Cray Valley USA, LLC

Material Safety Data Sheet

Product: POLY BD@ R45M-
0.1A/0.1C
MSDS ID: S-001458

Revised Date: 04-23-2002

01. GENERAL INFORMATION

GENERIC NAME

DOT PROPER SHIPPING NAME

N/AP

DOT HAZARD CLASS

Not regulated

UN/NA NUMBER

N/AP

02. SUMMARY OF HAZARDS

CAUTION

PHYSICAL HAZARDS: No significant hazards expected

ACUTE HEALTH EFFECTS: Suspect slight eye irritation hazard
Suspect slight skin irritation hazard
Suspect slight respiratory tract irritation hazard
Not expected to be a skin absorption hazard
Not expected to be an ingestion hazard

CHRONIC HEALTH EFFECTS: See Supplement section of MSDS for chronic health effects information.

03. COMPONENTS

| COMPONENT NAME | CAS NUMBER | % COMPOSITION (BY WT.) |
|--|------------|------------------------|
| 1,3-Butadiene, homopolymer, hydroxy-terminated** | 69102-90-5 | GT 99 |
| 1,4-Bis(2-naphthylamino)benzene | 93-46-9 | AP 0.1 |
| Ditridecylthiodipropionate | 10595-72-9 | AP 0.1 |
| 4-Vinylcyclohexene | 100-40-3 | <200 ppm |
| 1,3-Butadiene | 106-99-0 | <1 ppm |

**Exportation of this product is controlled by the United States Government. See Section 13 of MSDS for details.

04. PHYSICAL AND CHEMICAL DATA

BOILING POINT

>300C

FREEZING POINT

N/AP

SPECIFIC GRAVITY (H2O=1 at 39.2F)

0.90

pH

N/DA

DRY POINT

N/AP

VOLATILE CHARACTERISTICS

Negligible

Cray Valley USA, LLC

Material Safety Data Sheet

Product: POLY BD@ R45M-
0.1A/0.1C
MSDS ID: S-001458

Revised Date: 04-23-2002

| | |
|-------------------------------------|--------------------------|
| VISCOSITY UNITS, TEMP. (Brookfield) | SOLUBILITY IN WATER |
| N/DA | Negligible |
| VAPOR PRESSURE | STABILITY |
| N/DA | Stable |
| VAPOR SP GR (AIR=1 at 60 - 90F) | HAZARDOUS POLYMERIZATION |
| N/DA | Not expected to occur |

APPEARANCE AND ODOR

Viscous, clear to light yellow liquid

CONDITIONS AND MATERIALS TO AVOID

High temperatures, heat, sparks, open flame;
strong oxidizing agents, acids

HAZARDOUS DECOMPOSITION PRODUCTS

Acrid smoke-fumes/carbon monoxide/carbon dioxide and perhaps other toxic vapors may be released during a fire involving this product. Small amounts of butadiene may also be released.

05. OCCUPATIONAL EXPOSURE LIMITS

| SUBSTANCE | SOURCE | DATE | TYPE | VALUE | TIME |
|-----------|--------|------|------|-------|------|
|-----------|--------|------|------|-------|------|

A PEL or TLV has not been established

06. FIRE AND EXPLOSION

| | |
|--------------------------|---------------------------|
| FLASH POINT METHOD (COC) | AUTOIGNITION TEMP. METHOD |
| >400F | N/DA |

FLAMMABLE LIMITS (% VOLUME IN AIR)

LOWER: N/DA UPPER: N/DA

FIRE AND EXPLOSION HAZARDS

Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along ground before igniting/flashing back to vapor source. Fine sprays/mists may be combustible at temperatures below normal flash point.

EXTINGUISHING MEDIA

Dry chemical
Carbon dioxide
Water spray
Foam

SPECIAL FIREFIGHTING PROCEDURES

Cray Valley USA, LLC

Material Safety Data Sheet

Product: POLY BD® R45M-
0.1A/0.1C
MSDS ID: S-001458

Revised Date: 04-23-2002

Do not enter fire area without proper protection. See Section 4 - decomposition products possible. Fight fire from safe distance/protected location. Heat may build pressure/rupture closed containers, spreading fire, increasing risk of burns/injuries. Do not use solid water stream/may spread fire. Use water spraying/fog for cooling. Avoid frothing/explosion. Avoid direct personal contact with liquid even after fire is out to prevent potentially serious burns. Notify authorities if liquid enters sewer/public waters.

07. HEALTH HAZARDS

ROUTES OF EXPOSURE:

INHALATION

No significant signs or symptoms indicative of any adverse health hazard are expected to occur at standard conditions due to the low volatility of this material. However, aerosols, or vapors which may be generated at elevated processing temperatures, may result in adverse health effects. Symptoms may include headache, drowsiness, coughing and shortness of breath.

EYE CONTACT -- PRIMARY ROUTE

Although no appropriate human or animal health effects data are known to exist, this material is expected to cause slight eye irritation.

Symptoms of irritation may include redness, tearing or excessive blinking.

SKIN ABSORPTION

Not expected to be a skin absorption hazard.

SKIN IRRITATION -- PRIMARY ROUTE

Although no appropriate human or animal health effects data are known to exist, this material is expected to be a slight skin irritant.

Symptoms may include slight localized redness or rash and swelling.

INGESTION

Although no appropriate human or animal health effects data is known to exist, this material is not expected to be an ingestion hazard.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

See Supplement (Section 13 of MSDS).

08. PROTECTIVE EQUIPMENT / CONTROL MEASURES

RESPIRATORY PROTECTION

Cray Valley USA, LLC

Material Safety Data Sheet

Product: POLY BD® R45M-
0.1A/0.1C
MSDS ID: S-001458

Revised Date: 04-23-2002

No occupational exposure standards have been developed for this material. Where exposure through inhalation may occur from use, NIOSH/MSHA approved respiratory protection equipment is recommended.

EYE PROTECTION

Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor. Contact lenses should not be worn.

SKIN PROTECTION

Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn. This equipment should be cleaned thoroughly after each use.

Use nitrile or natural rubber gloves/skin protection.

ENGINEERING CONTROLS

If handling results in aerosol or vapor generation, local exhaust ventilation is recommended.

OTHER HYGIENIC PRACTICES

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

OTHER WORK PRACTICES

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse. Shower after work using plenty of soap and water.

09. EMERGENCY AND FIRST AID

INHALATION

If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

EYE CONTACT

In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention if pain, blinking, tears or redness persist.

SKIN CONTACT

Remove contaminated clothing as needed. Wash skin thoroughly with mild soap/water. Flush with lukewarm water for 15 minutes. If sticky, a waterless cleaner may be used.

Cray Valley USA, LLC

Material Safety Data Sheet

Product: POLY BD® R45M-
0.1A/0.1C
MSDS ID: S-001458

Revised Date: 04-23-2002

INGESTION

Ingestion unlikely. However, if ingested, obtain emergency medical attention.

EMERGENCY MEDICAL TREATMENT PROCEDURES

Treat symptomatically.

10. SPILL AND DISPOSAL

PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED

Evacuate/limit access. Prevent flow to sewers/public waters. Impound/recover large land spill; soak up small spill. On water, material insoluble. Contain/minimize dispersion/collect. Report per regulatory requirements.

WASTE DISPOSAL METHODS

When discarded in its purchased form, this product is not a RCRA hazardous waste. However, it is the responsibility of the generator to determine at the time of disposal whether the product meets the criteria of a hazardous waste. Comply with all applicable federal, state and local regulations. Waste disposal options include landfilling solids at permitted sites. Use registered transporters.

Burn concentrated waste in properly designed combustion systems compatible with highly viscous liquids. Avoid flameouts and assure that emissions comply with all applicable standards. Wastewater containing floating polybutadiene resins must not be fed to any biomass unless floating resin is first removed. Assure that any effluent from biotreatment complies with all applicable regulations.

11. ADDITIONAL PRECAUTIONS

HANDLING AND STORAGE PROCEDURES

Keep containers tightly closed when not in use. Store in a cool, dry, well ventilated area. Keep away from heat, sparks, open flame, and oxidizing agents. Protect from freezing. If frozen, thaw (without overheating) and mix before reuse.

If heating is necessary to facilitate material flow during use, use care to avoid localized overheating, possible degradation and container overpressure. Avoid spillage of product to prevent highly viscous material from sticking to and contaminating clothes or shoes.

The shelf-life of this polybutadiene resin is one year from date of receipt if the product is stored in the original, unopened container out of direct sunlight at temperatures between 50 and 90F. The predominant change that occurs during storage is an increase in viscosity.

Cray Valley USA, LLC

Material Safety Data Sheet

Product: POLY BD@ R45M-
0.1A/0.1C
MSDS ID: S-001458

Revised Date: 04-23-2002

DECONTAMINATION PROCEDURES

Follow standard plant procedures or supervisor's instructions for decontamination operations.

12. LABEL INFORMATION

USE STATEMENT

FOR INDUSTRIAL USE ONLY

SIGNAL WORD

CAUTION

PRECAUTIONARY MEASURES

KEEP AWAY FROM HEAT, SPARKS, OPEN FLAME AND OXIDIZING AGENTS.

KEEP CONTAINER CLOSED WHEN NOT IN USE.

USE ONLY WITH ADEQUATE VENTILATION/PERSONAL PROTECTION.

AVOID CONTACT WITH EYES, SKIN, AND CLOTHING.

AVOID BREATHING VAPORS/MISTS.

WASH THOROUGHLY AFTER HANDLING.

BEFORE USING PRODUCT, READ MATERIAL SAFETY DATA SHEET.

13. SUPPLEMENT

NPCA - HMIS RATING

| | |
|-----------------------|---|
| Health | 1 |
| Flammability | 1 |
| Reactivity | 0 |
| Personal protection** | D |

**Respiratory protection may be necessary depending on conditions of use. See Section 8 of MSDS for details.

CHRONIC HEALTH EFFECTS INFORMATION

No chronic health effects information is available for this product. However, this product contains trace amounts of 1,3-butadiene which has been classified as probably carcinogenic to humans by the International Agency for Research on Cancer (IARC). In addition, OSHA has recently issued a substance specific regulation for 1,3-butadiene. 1,3-Butadiene is not expected to present a health hazard if this product is used as supplied at room temperature; however, vapors generated at elevated processing temperatures may contain very small concentrations of 1,3-butadiene. Industrial hygiene monitoring should be performed to rule out exposure to this substance, and appropriate respiratory protection should be worn during these conditions.

This material also contains trace amounts of 4-vinylcyclohexene (VCH). High concentrations of VCH (271-677 part per million) have caused eye and nose irritation, headaches, white blood cell reduction, and impaired carbohydrate metabolism in some workers. Animal tests have shown white

Cray Valley USA, LLC

Material Safety Data Sheet

Product: POLY BD® R45M-
0.1A/0.1C
MSDS ID: S-001458

Revised Date: 04-23-2002

blood cell reduction and effects in blood circulation upon repeated inhalation exposures, and kidney toxicity and ovarian effects at an oral dose (repeated exposure) that produced many animal deaths. The National Toxicology Program (NTP) conducted a two-year animal study on the oral effects of VCH which resulted in numerous animal deaths and an increase in ovarian tumors in female mice. It is believed that mice have an increased sensitivity to VCH-induced ovarian effects as demonstrated by their ability to produce a significantly higher rate of an ovotoxic metabolite. IARC lists VCH as possibly carcinogenic to humans. The American Conference of Governmental Industrial Hygienists (ACGIH) classifies VCH as an animal carcinogen, causing cancer in test animals at relatively high doses, and by routes or mechanisms not considered relevant to worker exposure (i.e., ingestion is not a primary route of exposure for workers in an industrial setting). The ACGIH does list an exposure limit (TLV-TWA) of 0.1 ppm for VCH. Vapors generated at elevated processing temperatures may contain concentrations of VCH near the ACGIH TLV. VCH produced no genetic changes in tests using bacterial cells.

REGULATORY INFORMATION

TSCA STATUS:

TSCA status: All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

EXPORT RESTRICTIONS:

This product (a polybutadiene resin) and technical data related to this product are export controlled by the United States (US) Government. Exportation/international shipments of this product are subject to licensing by the US Government. Export, reexport or other diversion, either in the original product form or after being incorporated in an intermediate process into other end-items, is STRICTLY PROHIBITED unless expressly authorized by the cognizant agency of the US Government. If you plan to export this product in some form, please contact Sartomer Company for more information.

Hazard Categories Under Criteria of **SECTION 312 of SARA Title III** (40 CFR Part 370):

| | | | |
|----------------------------|---|----------|---|
| Immediate (Acute) Health | N | Fire | N |
| Delayed (Chronic) Health | N | Reactive | N |
| Sudden Release of Pressure | N | | |

SARA REPORTABLE QUANTITIES:

| | | |
|--------------------|------------------|-----------------|
| | <u>CERCLA RQ</u> | <u>SARA TPO</u> |
| 4-Vinylcyclohexene | 100 lbs. | |

Cray Valley USA, LLC

Material Safety Data Sheet

Product: POLY BD® R45M-
0.1A/0.1C
MSDS ID: S-001458

Revised Date: 04-23-2002

| | |
|--|---------|
| 1,3-Butadiene | 10 lbs. |
| 1,3-Butadiene homopolymer, hydroxy-terminated | - |

CALIFORNIA PROPOSITION 65:

California Proposition 65 Information: This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer and/or reproductive toxicity.

Vinylcyclohexene
1,3-Butadiene

*Note - qualifiers and codes used in this MSDS

EQ = Equal; AP = Approximately; LT = Less Than; GT = Greater Than;
TR = Trace; UK = Unknown; N/AP = Not Applicable; N/P = No Applicable
Information Found; N/DA = No Data Available

14. DISCLAIMERS

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable. This MSDS has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).